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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/588,061  | 08/01/2006  | Harunari Shimamura   | 043888-0494         | 4340             |
| 20277 7590 08/04/2010<br>MCDERMOTT WILL & EMERY LLP<br>600 13TH STREET, N.W.<br>WASHINGTON, DC 20005-3096 |             |                      |                     |                  |
| EXAMINER  |             |                      |                     |                  |
| DOVE, TRACY MAE   |             |                      |                     |                  |
| ART UNIT  |             | PAPER NUMBER         |                     |                  |
| 1795  |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/588,061

**Applicant(s)**

SHIMAMURA ET AL.

**Examiner**

TRACY DOVE

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 4-6 is/are pending in the application.
- 4a) Of the above claim(s) 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

### **DETAILED ACTION**

This Office Action is in response to the communications filed on 6/14/10.

Applicant's arguments have been considered, but are not persuasive. Claims 1 and 4-6 are pending. Claim 6 has been withdrawn from consideration.

#### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/14/10 has been entered.

#### ***Election/Restrictions***

Applicant's election without traverse of Species 1 (manganese dioxide) in the reply filed on 11/19/09 is acknowledged. Claims 1, 4 and 5 read upon the elected species. Claim 6 is withdrawn.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eylem et al., US 7,049,030 in view of Noriyuki et al., JP 2000-082503.

Eylem teaches an alkaline battery comprising a positive electrode, a negative electrode and an alkaline electrolyte. The alkaline electrolyte has a dissolved aluminum material such as  $\text{Al}(\text{OH})_3$ . The negative electrode includes a zinc active material (1:31-66). The negative electrode can further include an aluminum material (2:59-60). The zinc active material of the negative electrode may be zinc alloy (5:23-24). The alkaline electrolyte may be an electrolytic solution such as an aqueous hydroxide solution (e.g.,  $\text{LiOH}$ ,  $\text{NaOH}$ ,  $\text{KOH}$  or mixtures thereof) and is dispersed throughout the battery (3:28-40). A portion of the electrolytic solution is dispersed throughout the negative electrode (5:15-17). The electrolytic solution can include equal to or less than 2 wt% of aluminum (such as  $\text{Al}(\text{OH})_3$ ). For relatively unconcentrated alkaline electrolytic solution, less aluminum material can be used (4:12-21). The positive electrode material may be manganese oxide (6:37-46).

Eylem does not explicitly teach the alkaline electrolytic solution of the negative electrode mixture contains 0.1-2 wt% of  $\text{LiOH}$ . Eylem teaches a combination of  $\text{KOH}$  and  $\text{LiOH}$  may be used as the electrolytic solution.

However, Noriyuki teaches an alkaline battery comprising a negative electrode of zinc particles and an electrolyte of potassium hydroxide. The electrode also may include lithium hydroxide in an amount of 0.1-1 wt% (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made include the lithium hydroxide taught by Eylem in an amount of 0.1-1 wt%, as taught by Noriyuki, in order to effectively transfer ions to and from the electrode during the charge/discharge cycle of the battery and suppress the reactivity of the electrode

materials with the electrolyte solution. Noriyuki teaches the battery has improved properties because the zinc negative electrode is protected from corrosion from the potassium hydroxide solution.

Regarding claim 4, Eylem teaches a portion of the electrolytic solution is dispersed throughout the negative electrode. Eylem does not explicitly teach a weight ratio of alkaline electrolyte to the zinc alloy of the negative electrode mixture is 0.1-2. However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one of skill would have known that the amount of electrolyte present in the negative electrode could have been varied depending on the concentration of the electrolytic solution. One of skill would have known that a sufficient amount of electrolytic solution would need to be contained in the negative electrode to prevent the formation of copper metal while consuming a corresponding amount of zinc resulting in lower battery capacity, to prevent evolution of hydrogen gas and to prevent the formation of dendrites that can result in short circuit of the battery (Eylem 3:41-59). One of skill would have also known that the amount of active material contained in the negative electrode would need to be maximized to prevent a decrease in battery capacity. Thus, one of skill would not have been motivated to provide excess amounts of electrolytic solution in the negative electrode active material mixture. One of skill in the art would have understood the potential tradeoffs between adding different amounts of electrolytic solution to the negative electrode active material mixture and could have altered the amount to achieve the

desired effects of the battery. Eylem teaches the amount of electrolytic solution can vary depending on the concentration of the alkaline electrolyte.

### ***Response to Arguments***

Applicant's arguments filed 6/14/10 have been fully considered but they are not persuasive.

Applicant argues Eylem teaches the amount of aluminum is from 1-8 wt%. While Eylem further teaches less aluminum can be used, it does not disclose the precise range of 0.001-0.2 wt% as recited by the claimed invention. However, Eylem teaches less than or equal to 2 wt% and less than 1 wt% of aluminum is contained in the electrolytic solution. Thus the claimed range is contained within the prior art range. Without a showing of criticality for the claimed range *over the prior art*, the limitation is considered obvious in view of the teachings of Eylem. Note Tables 2 and 3 are not representative of the teachings of Eylem and/or Noriyuki (see Table 1 of the present specification). Furthermore, Tables 2 and 3 are not commensurate in scope with the claimed invention. For example, Table 2 shows values for various zinc alloys. The claimed invention does not recite any specific zinc alloy composition. *Evidence of unexpected results must distinguish the claimed invention over the prior art of record.* Furthermore, Eylem teaches the presence of aluminum ions (from an aluminum material such as  $\text{Al}(\text{OH})_3$ ) can enhance the storage life and/or capacity of the battery. Therefore, Applicant's asserted improved discharge capacity is not an "unexpected result".

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRACY DOVE whose telephone number is (571)272-1285. The examiner can normally be reached on M & TU (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 30, 2010

/TRACY DOVE/

Primary Examiner, Art Unit 1795